

Thin Films

UDC 547.1'13 + 621.793.1

USSR

GRIBOV, B. G., RUMYANTSEVA, V. P., TRAVKIN, N. N., PASHINKIN, A. S.,
KOZYRKIN, B. I., and SALAMATIN, B. A.

"Study of Metallic Films Obtained by Pyrolysis of Chromium and Molybdenum π -Complexes in the Gas Phase"

Moscow, Doklady Akademii Nauk SSSR, Vol 194, No 3, 1970, pp 580-582

Abstract: The article describes results of a study of the properties of metallic chromium and molybdenum films obtained by the pyrolysis of organic chromium and molybdenum compounds. The organometallics used were bis-benzene-, bis-toluene-, bis-ethylbenzene-, bis-xylene-, bis-mesitylene-, bis-diphenylchromium, their iodides, aniline-, dimethylaniline- and mesitylenechromium tricarbonyl, mesitylenemolybdenum tricarbonyl and bis-ethyl-benzenemolybdenum. The resultant metallic films possess considerable mechanical strength and hardness, elevated corrosion and acid resistance, and high adhesion. In order to study the properties of the pyrolytic chromium and molybdenum films, electro-

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USSR

GRIBOV, B. G., et al., Doklady Akademii Nauk SSSR, Vol 194, No 3,
1970, pp 580-582

physical parameters were measured and the structure and properties of the films determined by the electron diffraction method and electron microscopy. The results indicate that a number of peculiarities in metallic films obtained by the pyrolysis of organometallics are explained by the character of their formation during thermal decomposition, and their composition and properties depend on the conditions under which the thermal decomposition is carried out, as well as on the initial organometallics.

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USSR

ZUBKOVA, O. B., GRIBOV, I. A. SHABADASH, A. N.

"The Use of Calculations of the Intensity of Absorption Bands in Infrared Spectra for the Study of Rotational Isomerism."

Minsk, Zhurnal Prikladnoy Spektroskopii, Feb 72, pp 306-312

ABSTRACT: The article concerns an analysis of the results of theoretical and experimental calculations of the intensity of infrared absorption bands of compounds of ethylene glycol from monomers to trimers in trans and gauche conformations. The calculations were made within the framework of the valence-optical theory on the intensity of infrared absorption bands, and experimental values were obtained on the basis of the recorded spectra of liquid samples of these compounds. It was shown that the theoretical calculations of the intensity make it possible to distinguish clear indications of different isomers.

On the basis of an analysis of the theoretical and experimental calculations a conclusion was drawn concerning the existence of chiefly gauche isomers in vapors of the compounds studied and a mixture of trans and gauche isomers in liquids.

1/1 The article includes one table and two figures. There are 10 references.

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USSR

UDC 539.192/.194+535.33/.34.01

GRIBOV, L. A.

"On the Application of Vibrational Spectra to Study the Structure of Complex Metals With Organic Ligands"

V sb. Kolebatel'n. spektry v neorgan. khimii (Vibrational Spectra in Inorganic Chemistry -- Collection of Works), Moscow, "Nauka," 1971, pp 5-11 (from RZh-Fizika, No 5, May 71, Abstract No 5D135)

Translation: The general principles and characteristics of the interpretation of vibrational spectra of complexes with organic ligands are discussed. Authors abstract.

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USSR

UDC 539.194:548.0

GRIBOV, L. A.

"Theory of Vibrations of Connected Polymer Chains and Crystals"

Leningrad, Optika i Spektroskopiya, No 5, Nov 70, pp 876-883

Abstract: A general method is proposed for calculating vibrational spectra of formations which consist of parallel periodic chains located at the same distance from one another and connected with one another such that the first link of the first chain interacts with the first link of the second chain, the first link of the second chain interacts with the first link of the third chain, etc.; the second link of the first chain interacts with the second link of the second chain, the second link of the second chain interacts with the first link of the third chain, etc. In this three-dimensional system the first chain of one two-dimensional layer interacts with the first chain of the second two-dimensional layer, the second chain of the first layer interacts with the second chain of the second layer, etc. For generality, it is assumed that interactions of chains in one layer and chains of different layers are not the same. Kinematic and force constants are found for chains with one and many degrees of freedom and for the case of 1/2

USSR

GRIBOV, L. A., *Optika i Spektroskopiya*, No 5, Nov 70, pp 876-883

finite and infinite objects. The author notes that with the development of a method for calculating three-dimensional structures of connected polymer chains, one can consider the theory of IR spectra of polymers, taking into account the effect of defects in general terms.

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USSR

UDC 539.192

DEMENT'YEV, V. A., KONDRATOV, O. I., GRIBOV, L. A., (Dept. of Physics) KASHKAN, L. I., (Belorussian State University)

"Program for Solving the Problems of Multiatomic Molecule Oscillation Modes on 'Minsk-22' Computer"

Moscow, Izvestiya Timirayzevskoy Sel'skohozyaystvennoy Akademii, No 2, 1970, pp 203-214

Abstract: The algorithm and the program for solving the direct spectral problem of the theory of oscillatory spectra of multiatomic molecules (up to 27 atoms) on the "Minsk-22" electronic computer are described in detail. The program consists of four logically independent sections; 1) the formation of matrices (up to 81st order) of molecule kinetic T_p and potential U_q energy in the natural and symmetry coordinates; 2) the determination of oscillation frequencies and modes in natural and symmetry coordinates with automatic search and elimination of dependent coordinates; 3) the reduction of the oscillatory mode in natural coordinates to zero amplitudes of normal oscillatory modes; 4) determination of atoms displacement corresponding to zero amplitudes of normal

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DEMENT'YEV, V. A., et al., Moscow, Izvestiya Timirayzevskoy Sel'skokozyaystvennoy Akademii, No 2, 1970, pp 203-214

oscillatory modes. An example of the preparation and recording of the initial data for determining the oscillatory mode of a multiatomic molecule of ethane (C_2H_6) is presented. Original article has two figures, ten formulas and three tables.

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UNCLASSIFIED

PROCESSING DATE--20NOV70

TITLE--STRUCTURE OF EXTRACTABLE MIXED CHELATE COMPOUNDS STUDIED BY AN
INFRARED SPECTROSCOPIC METHOD -U-

AUTHOR--(03)--NOSKOVA, M.P., ZOLOTOV, YU.A., GRIBOV, L.A.

COUNTRY OF INFO--USSR

SOURCE--ZH. ANAL. KHIM. 1970, 25(2), 220-5

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHELATE COMPOUND, IR SPECTRUM, ZINC COMPLEX, COPPER COMPLEX,
COBALT COMPLEX, FLUORINATED ORGANIC COMPOUND, ACETONE, PYRAZOLE, KETONE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/0002

STEP NO--UR/0075/70/025/002/0220/0225

CIRC ACCESSION NO--AP0132302

UNCLASSIFIED

2/2 031

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0132302

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. COMPLEXES FORMED DURING THE EXTN. OF ZN, CU, AND CO WITH 2 THENYLTRIFLUOROACETONE AND 1 PHENYL 3 METHYL 4 BENZYL 5 PYRAZOLONE 5 IN THE PRESENCE AND ABSENCE OF TRI N OCTYLPHOSPHINE OXIDE WERE STUDIED BY IR SPECTROSCOPIC METHODS. THE STRUCTURES OF THE COMPLEXES WERE EXAMD. IN CONNECTION WITH THE SYNERGISTIC EFFECTS CBSD. DURING THE EXTN. OF METALS BY THE ABOVE REAGENT MIXTS. FACILITY: INST. GEOCHEM. ANAL. CHEM., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC: 621.396.69:621.319.4

GRIBOV, M. M.

"A Pneumatic Shock Absorber with Thermal Compensator"

V sb. Obmen opytom v radiopromyshlennosti (Experience Pooling in the Electronics Industry--collection of works), Vyp. 6, Moscow, 1970, pp 79-80 (from RZh-Radiotekhnika, No 10, Oct 70, Abstract No 10V328)

Translation: A pneumatic shock absorber with thermal compensation automatically maintains a constant static level with a given load, and operates without expending compressed gas. The effect consists in the fact that the working cavity of the shock absorber contains a temperature compensator which is a controllable capacitor which automatically decreases with an increase in the compressed gas temperature and vice versa. Resumé.

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856

GRIBOV

M.M.

UR 0482

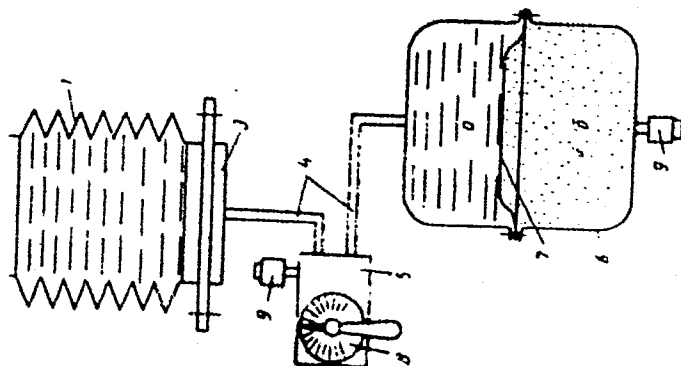
ations Illustrated, Section III Mechanical and General,
70

239808 HYDROPNEUMATIC SHOCK ABSORBER comprises a bellows (1), filled with liquid and connected to chamber (a) of tank (6). Chamber (b) is filled with compressed nitrogen and separated from chamber (a) by flexible diaphragm (7). Valve (5) controls the flow of liquid from bellows to tank and vice versa, and has a scale calibrated in damping coefficient units (8).

19.6.67 as 1164976/25-27. M.M.GRIBOV (24.7.69)
Bul 11/18.3.69. Class 63c.Int.Cl.B 62d.

18

19791522



19791523

135

174 022

UNCLASSIFIED

PROCESSING DATE--16OCT70

TITLE--AN EXPERIMENT IN THE ELEKTROTECHNICAL INDUSTRY -U-

AUTHOR--(03)-GRIBOV, V., NIKITIN, YU., ASTAF, YEV.V.

COUNTRY OF INFO--USSR

SOURCE--EKONOMICHESKAYA GAZETA, JULY, 1970, NR 27, SUPPLEMENT

DATE PUBLISHED----JUL70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR., BEHAVIORAL AND SOCIAL SCIENCES

TOPIC TAGS--R AND D FACILITY ORGANIZATION, R AND D MANAGEMENT, DESIGN BUREAU, TEST FACILITY GROWTH, R AND D PLANNING, ELECTRONIC INDUSTRY, ELECTRIC INDUSTRY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1993/1138

STEP NO--UR/9001/70/000/027/0000/0000

CIRC ACCESSION NO--AN0113890

UNCLASSIFIED

2/4 022

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AN0113890

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE GOAL OF THE EXPERIMENT IS TO REDUCE, INASMUCH AS POSSIBLE, THE TIME LAG BETWEEN THE CONCEPTION OF THE ADVANCED IDEA AND ITS TRANSLATION INTO A NEW PRODUCT. THE FIRST STEP IN THIS DIRECTION WAS THE REORGANIZATION OF THE RESEARCH AND DEVELOPMENT FACILITIES OF THE MINISTRY. IT WAS DECIDED (1) TO CENTRALIZE, INASMUCH AS POSSIBLE, BASIC RESEARCH AND RESEARCH AND DEVELOPMENT MANAGEMENT IN CERTAIN AREAS OF THE INDUSTRY, (2) TO MAXIMIZE THE SPECIALIZATION OF RESEARCH INSTITUTES AND DESIGN BUREAUS, AND INDUSTRY, (4) TO STRENGTHEN AND EXPAND EXPERIMENTAL AND PILOT PLANT FACILITIES. AS A RESULT, 15 LEADING (GOLOVNYYE) INSTITUTES, 2 BRANCHES OF THESE INSTITUTES, AND 2 SPECIALIZED INSTITUTES HAVE BEEN REORGANIZED AS 17 COMPREHENSIVE SCIENTIFIC RESEARCH INSTITUTES, DESIGN PLANNING AND TECHNOLOGICAL INSTITUTES, THE INFORMELEKTRO INSTITUTE. 17 OF THE 33 AFFILIATES OF LEADING INSTITUTES HAVE BEEN TRANSFERRED UNDER DIRECT CONTROL OF INDUSTRIAL PLANTS. THE OTHER 16 ARE RESPONSIBLE TO THE MINISTRY AND SERVE RIGIDLY DEFINED GROUPS OF INDUSTRIAL PLANTS. SPECIALIZED INSTITUTES AND CORRESPONDING PLANTS WERE MERGED TO FORM FOUR RESEARCH PRODUCTION CORPORATIONS, THE ELEKTROAPPARAT, THE ELEKTROKERAMIKA, THE KONDENSATOR, AND THE AKKUMULYATOR. IN THE PROCESS OF BEING ESTABLISHED IS THE FIFTH CORPORATION, THE ELEKTROPRIVOD. DESIGN PLANNING AND TECHNOLOGICAL BUREAUS HAVE BEEN ESTABLISHED AT EIGHT LARGE INDUSTRIAL ENTERPRISES THAT FORMERLY HAD NONE.

UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AN0113890

ABSTRACT/EXTRACT--21 DESIGN TECHNOLOGICAL BUREAUS, WHICH FORMERLY WERE UNDER MINISTERIAL MANAGEMENT, HAVE BEEN TRANSFERRED TO INDUSTRIAL PLANTS. 10 SUCH BUREAUS WERE TRANSFERRED TO RESEARCH TECHNICAL CENTERS. ONLY 10 BUREAUS REMAIN UNDER DIRECT CONTROL OF THE MINISTRY. 16 PLANT RESEARCH LABORATORIES HAVE BEEN RECLASSIFIED AS RESEARCH ORGANIZATIONS. THE ARTICLE DISCUSSES THE NEW RESEARCH AND PRODUCTION PLANNING PROCEDURE WHICH IS BASED ON INTRAMINISTERIAL ORDERS TREATED AS CONTRACTS. SUCH AN ORDER ENCOMPASSES ALL STAGES OF RESEARCH, THE EXPLORATORY STAGE THROUGH THE EXPERIMENTAL STAGE, AND THE MANUFACTURE OF NEW PRODUCTS OR THE APPLICATION OF NEW TECHNOLOGICAL PROCESSES. THESE ORDERS ARE BASED ON FIVE YEAR AND ANNUAL PLANS, DECREES OF THE GOVERNMENT, COORDINATION PLANS APPROVED BY THE STATE COMMITTEE FOR SCIENCE AND TECHNOLOGY, LONG RANGE PLANS, OR DECISIONS OF THE MINISTRY OR ITS MAIN ADMINISTRATIONS. PRINCIPAL CONSUMERS ARE MAIN INDUSTRIAL ADMINISTRATIONS OF THE MINISTRY. ITS TECHNICAL ADMINISTRATION, AND FUNCTIONAL ADMINISTRATIONS. THE FORMER ARE RESPONSIBLE FOR PROBLEMS AND PRODUCTS RELATED TO THEIR PROFILES. THE SECOND IS RESPONSIBLE FOR COMPLEX EQUIPMENT, THE DEVELOPMENT OF WHICH IS RELEGATED TO THE ORGANIZATIONS AND PLANTS OF SEVERAL MAIN ADMINISTRATIONS. THE LATTER ARE INVOLVED IN ECONOMICAL PROBLEMS. THE ARTICLE ALSO DISCUSSES IN SOME DETAILS THE ECONOMIC INCENTIVES AND FINANCING OF RESEARCH AND DEVELOPMENT PROJECTS. A CHART IS GIVEN WHICH SHOWS HOW VARIOUS FUNDS ARE ALLOCATED. FACILITY: PLANNING ECONOMY ADMINISTRATION. FACILITY: FINANCE ADMINISTRATION. FACILITY: TECHNICAL ADMINISTRATION.

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UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AN0113890

ABSTRACT/EXTRACT--FACILITY: MINISTRY OF THE ELECTROTECHNICAL INDUSTRY.

UNCLASSIFIED

Vector Studies

USSR

VOTYAKOV, V. I., GRIBOV, V. A., RYTIK, P. G., and BOYKO, V. I., Belorussian Scientific Research Institute of Epidemiology and Microbiology, Minsk

"Device for Feeding and Natural Infection of Insects"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obratztsy, Tovarnyye Znaki, No 9, 1973, p 102

Translation: The device for feeding and natural infection of insects, consisting of two chambers (one of them open, the other one closed) divided by a membrane and having an opening for supplying the donor's blood, differs in that there is a bolt (for instance a ball valve) installed in the channel for serving blood and that the open chamber is provided with a netted ring, which is fixed by a clamping mount, in order to increase the safety of serving donor's blood and to prevent dissemination of the insects used in the experiment.

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USSR

SOLYAKOV, S. P., BELKIN, G. I., TATAKIN, A. N., NACHAYEV, V. M., ZOBNIN, S. I.,
ZYEV, N. M., IVANOV, A. B., VUKOLOV, V. V., SVALOV, G. N., DEVIATKIN, V. N.,
ALEKSANDROV, V. A., GRIBOV, V. I.

"Method of Processing Slimes from Electrolytic Production of Magnesium"

Author's Certificate No 278126, filed 11/02/69, published 18/11/70. (Translated
from Referativnyy Zhurnal Metallurgiya, No 2, 1972, Abstract No 2G185).

Translation: In order to use the slime for production of Mg, it is fed from the
electrolyzers to chlorinators together with the depleted $MgCl_2$ electrolyte
in the form of a pulp containing 1-10% MgO and 5-25% $MgCl_2$. The chlorinators
also receive the Cl-Mg raw material and Cl_2 , after which the electrolyte,
enriched with $MgCl_2$, is fed to the electrolyzers.

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USSR

GRIBOV, V. N., KOBZAREV, I. YU., MUR, V. D., OKUN', L. B., POPOV, V. S.

"On the Properties of Amplitudes Not Satisfying Conditions of the Pomeranchuk Theorem"

Moscow, Yadernaya Fizika, Vol 12, No 6, Dec 70, pp 1271-1285

Abstract: The properties of amplitudes violating the Pomeranchuk equality

$\sigma = \bar{\sigma}$, where σ and $\bar{\sigma}$ are the total cross sections for particles and antiparticles respectively, are investigated. It is shown that in the case of constant asymptotic ($S \rightarrow \infty$) cross sections both the crossing-antisymmetric and the crossing-symmetric parts of the amplitude must have a radius that increases logarithmically with energy. Then $a_{\rho}^{-}(\xi)$, the imaginary parts of partial waves of the S -channel with negative sign, must be an alternating function of its arguments $\xi = \ln S$ and the impact parameter ρ . Therefore $a_{\rho}^{+}(\xi)$, the imaginary parts of the crossing-symmetric partial amplitudes cannot be proportional to $a_{\rho}^{-}(\xi)$ and must be selected in such a way as to ensure S -channel unitarity. The properties

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USSR

GRIBOV, V. N., et al., Yadernaya Fizika, Vol 12, No 6, Dec 70, pp 1271-1276

of amplitudes violating the equality $\mathcal{O} = \bar{\mathcal{O}}$ are analyzed using the method of the so-called automodeling partial amplitudes, which are a function of one variable $\mathcal{L} = p/\xi$. The general form of these amplitudes, their crossing properties, and the question of \mathcal{S} -channel unitarity and their dependence on the angular momentum j in the t -channel are discussed. Some examples of automodeling functions are given.

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USSR

G
GRIBOV, V. N.; LEVIN, Ye. M.; MIGDAL, A. A. (Joffe Physics-Engineering Institute, USSR Academy of Sciences)

"Fermion Regge Poles and Branch Points in the J-Plane"

Moscow, Journal of Nuclear Physics; March 1970, pp 673-86

ABSTRACT: The mechanism of the occurrence, positions, and basic properties of branch points in the complex angular momentum plane that are related to the fermion Regge poles is discussed. Additional singularities with the motion \sqrt{u} for $u \rightarrow 0$ arise due to interaction of fermion reggions with vacuum reggions ("enhanced graphs"). The general situation with the singularities has two scales: \sqrt{u} along the imaginary axis and u along the real axis. This corresponds to two diffraction radii in the scattering amplitude: $R_1 \sim \ln s$ and $R_2 \sim \sqrt{\ln s}$. Two possible solutions for the scattering amplitude (the so-called "strong" and "weak" couplings) are investigated at asymptotically high energies, $\ln \ln s \gg 1$. In conclusion, the angular distribution in the case of weak coupling is considered.

The article includes 40 equations and 20 figures. There are 13 bibliographic references.

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USSR

GRIBOV, V. N., Physicotechnical Institute imeni A. F. Ioffe, Academy of Sciences USSR, and Institute of Theoretical and Experimental Physics, State Committee for the Use of Atomic Energy; MUR, V. D., Moscow Engineering-Physics Institute, and Institute of Theoretical and Experimental Physics, State Committee for the Use of Atomic Energy; KOBZAREV, I. YU., OKUN', L. B., and POPOV, V. S., Institute of Theoretical and Experimental Physics, State Committee for the Use of Atomic Energy

"Properties of Amplitudes With Logarithmically Increasing Interaction Radius"

Moscow, Yadernaya Fizika, Vol 13, No 3, Mar 71, pp 670-680

Abstract: A previous article by the authors considered the elastic scattering amplitudes of the particle $F(s,t)$ and antiparticle $\bar{F}(s,t)$ for the case in which the Pomeranchuk equality is violated:

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GRIBOV, V. N., et al., Yadernaya Fizika, Vol 13, No 3, Mar 71,
pp 670-680

viz., given $s \rightarrow \infty$ the total cross-sections of the interaction
with a given target for the particle and antiparticle are con-
stant and do not equal each other

$$\sigma, \bar{\sigma} = \text{const}, \quad \sigma \neq \bar{\sigma}.$$

An analysis was given of so-called self-similar modes in which
the behavior of the amplitudes, in essence, is determined by a sin-
gle variable $\bar{\tau} = \rho_0 \xi^{\tau_0}$; where $\xi = \ln s$, q is the momentum
transfer ($\tau = -q^2$), and ρ_0 is the length dimensionality param-

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USSR

GRIBOV, V. N., et al., Yadernaya Fizika, Vol 13, No 3, Mar 71, pp 670-680

eter; and it was shown that the imaginary part of the crossing-antisymmetric amplitude is an alternating function of its arguments \sqrt{s} and q . The present article considers limitations which are imposed on the amplitude by analyticity and unitarity in the case of constant total cross-sections, as well as those that vary with energy, without any assumption of self-similarity. It is shown that a number of amplitude properties established in the earlier article, particularly the sign alternation of the imaginary part of the crossing-antisymmetric amplitude, obtain even without the assumption of self-similarity. Modes are considered in which the characteristic impact parameters ρ increase with increase in energy (the Pomeranchuk equality is violated, given $\rho \sim \rho_c \xi$), with a discussion only of those ρ and q for which $\rho/\rho_c \gg 1$ and $q\rho_c \ll 1$.

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USSR

GRIBOV, V. N., et al., Yadernaya Fizika, Vol 13, No 3, Mar 71,
pp 670-680

The authors thank A. A. ANSEL'M, G. S. DANILOV, I. T.
DYATLOV, G. T. ZATSEPIN, B. L. ICFE, A. B. KAYDALOV, and YE. M.
LEVIN for useful discussions.

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1/2 020 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--ON THE VACUUM POLE IN QUANTUM ELECTRODYNAMICS -U-
AUTHOR-(03)-FROLOV, G.V., GRIBOV, V.N., LIPATOV, L.N. 6
COUNTRY OF INFO--USSR
SOURCE--PHYS. LETTERS (NETHERLANDS), VOL. 318, NO.1.P.34-5 (5 JAN. 1970)
DATE PUBLISHED--05JAN70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--QUANTUM ELECTRODYNAMICS, ASYMPTOTIC PROPERTY, SCATTERING
AMPLITUDE, APPROXIMATION CALCULATION, GAMMA SCATTERING, ELECTRON
SCATTERING
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1986/0074 STEP NO--NE/0000/70/031/001/0034/0035
CIRC ACCESSION NO--AP0102164
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--16OCT70

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CIRC ACCESSION NO--AP0102164

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE ASYMPTOTIC BEHAVIOR OF THE E_{ν} .
ENU AND NUNU SCATTERING AMPLITUDES IS DETERMINED IN THE MAIN LOGARITHMIC
APPROXIMATION. THE J PLANE SINGULARITIES IN THE CHANNEL WITH VACUUM
QUANTUM NUMBERS ARE INVESTIGATED NEAR J EQUALS 1.
A.F. IOFFE PHYS., TECH., INST., LENINGRAD, USSR.

FACILITY:

UNCLASSIFIED

USSR

UDC (546.821+546.883):543.062

PAL'NIKOVA, T. I., DOLGOREV, A. V., and GRIBOVA, L. I., Ber-
eznikovsk Branch of the All-Union Scientific Research and De-
sign Institute of the Aluminum, Magnesium, and Electrode In-
dustry

"Method of Quantitative Discrimination and Subsequent Determ-
ination of Titanium and Tantalum in Niobium Products"

Moscow, Zavodskaya Laboratoriya, Vol 39, No 9, 1973, pp 1045-
1047

Abstract: The authors have studied the conditions for dis-
crimination and determination of titanium and tantalum in
technical niobium hydroxide. They developed a method of sep-
arating titanium from several solutions by using chloroform
to extract its complex with stannic chloride and other so-
lutions. The extract produced is suitable for the quanti-

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USSR

PAL'NIKOVA, T. I., et al., *Zavodskaya Laboratoriya*, Vol 39, No 9, 1973, pp 1045-1047

tative determination of titanium. Conditions were developed for the spectrophotometric determination of tantalum in an oxalate solution after separation of the titanium. The accuracy of the method for 0.5-2.5% TiO_2 is 10.5-2% and for 1.5-7% Ta_2O_5 it is 3-8%.

Figure 1 shows the dependence of optical density of chloroform extracts on concentration of tartaric acid and ammonium oxalate. Figure 2 illustrates the spectrophotometric characteristics of aqueous solutions. The table illustrates determination of Ta_2O_5 and TiO_2 in technical niobium hydroxide.

The article contains 2 illustrations and 1 table.

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1/2 018 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--USE OF TRIFLUOROACETIC ANHYDRIDE AS AN ACYLATING AGENT IN THE
ANALYSIS OF A MIXTURE OF AMINES -U-
AUTHOR--(02)-GRIBOVA, YE.A., DYATLOVA, V.V.
COUNTRY OF INFO--USSR
SOURCE--ZAVOD. LAB. 1970, 36(1), 29-30
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--FLUORINATED ORGANIC COMPOUND, ACYL RADICAL, ANHYDRIDE, AMINE,
POTENTIOMETRIC TITRATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1995/1253 STEP NO--UR/0032/70/038/001/0029/0030
CIRC ACCESSION NO--AP0116715
UNCLASSIFIED

2/2 018

UNCLASSIFIED

PROCESSING DATE--30JCT70

CIRC ACCESSION NO--AP0116715

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. WHEN TRIFLUOROACETIC ANHYDRIDE IS USED IN PLACE OF AC SUB2 O FOR ACYLATION IN THE ANAL. OF A MIXT. OF AMINES, THE ACYLATION CAN BE CARRIED OUT COMPLETELY AT ROOM TEMP. IN 30 MIN. THE SAMPLE WAS THEN TITRATED BY POTENTIOMETRICALLY WITH HCLU SUB4. THE ERROR WAS PLUS 0.24 TO MINUS 0.42PERCENT. FACILITY: NAUCH.-ISSLED. INST. ORG. POLUPROV. KRASITELI, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC: 621.372.88

VAGANOV, Yu. I., ~~GRIBOVSKIY, P. O.~~

"A Capacitive Electrically Controlled Element for High-Frequency Devices"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obratzsy, Tovarnyye Znaki, No 11, Apr 72, Author's Certificate No 333639, Division H, filed 21 Jul 70, published 21 Mar 72, pp 211-212

Translation: This Author's Certificate introduces a capacitive electrically controlled element for high-frequency devices. The element is used for realizing a linear controlling function and contains capacitors with non-linear dielectric. As a distinguishing feature of the patent, in order to reduce the extent to which the capacitance depends on the amplitude of the high-frequency signal, the controlled element is made in the form of two cylindrical cup-shaped capacitors with electrodes applied to both sides of their bases. The capacitors are connected in series in the high-frequency alternating signal circuit, and in parallel in the DC bias source circuit.

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USSR

UDC 621.396.69

GRIBOVSKIY, PETR OSKAROVICH"Ceramic Solid Circuits"

Keramicheskiye tverdyye skhemy (cf. English above), Moscow, Izd-vo "Energiya," 1971. 448 pp. Ill.

Abstract: The monograph is devoted to one of the new trends in the development of electronics, which is based on the use of the physical properties of polycrystalline solid and the technology of hot casting of ceramics. Ceramic solid circuits are functionally and constructively complete electron devices made in the form of a monoblock solid. In the book the results of studies conducted by the author are generalized and the physical and the design-technological principles of ceramic solid circuits are stated. Examples are presented of designs worked out for ceramic solid circuits and their principal parameters. The book is intended for engineer-designers and technologists working in the field of electronics and electronic technics.

TABLE OF CONTENTS

Preface

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USSR

GRIBOVSKIY, PETR OSKAROVICH, Keramicheskiye tverdyye skhemy, Moscow, Isd-vo "Energiya," 1971, 448 pp. Ill.

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GRIBOVSKIY, PETR OSKAROVICH, Keramicheskiye tverdyye skhemy, Moscow, Isd-vo "Energiya," 1971, 448 pp. Ill.

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AUTHORS-- ANOKHIN, S., AND GALLAY, M., MERITORIOUS TEST PILOTS, U.S.S.R., KUPFER, M. AND GRIBOVSKIY, V., AIRCRAFT DESIGNERS, TSYBIN, P. AND PYSHNOV, V., MERITORIOUS SCIENTISTS AND ENGINEERS, RAUSHENBAKH, V., CORRESPONDING MEMBER OF THE ACADEMY OF SCIENCES, AND KOSTENKO, I., CANDIDATE OF TECHNICAL SCIENCES

TITLE-- WINGS FOR THE IMPOSSIBLE DREAM

NEWSPAPER-- KOMSOMOL,SKAYA PRAVDA, JANUARY 15, 1970, P 2, COLS 3-6

ABSTRACT-- THE AUTHORS ARE PROPOSING THE ESTABLISHMENT OF AN INTER-AGENCY COMMISSION ON GLIDERS AND SMALL-ENGINE PLANES WHICH WOULD GUIDE AND COORDINATE ALL THE ACTIVITIES CONNECTED WITH DO-IT-YOURSELF AIRCRAFT.

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L/2 028 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--EFFECT OF COMPLEX SATURATION WITH BORON AND COPPER ON THE STRENGTH
CHARACTERISTICS AND WEAR RESISTANCE OF CARBON STEEL -U-
AUTHOR-(05)-POKHMURSKY, V.I., VAGULA, R.G., GRIBOVSKY, YA.S, ZAMIKHOVSKY,
V.S., TABINSKY, K.P.
COUNTRY OF INFO--USSR

SOURCE--FIZ.-KHIM. MEKHAN. MAT., 1970, 6,(2), 18-21

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--WEAR RESISTANCE, COPPER ALLOY, BORIDE, CARBON STEEL, IMPACT
STRENGTH, FATIGUE STRENGTH

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3003/0213

STEP NO--UR/0369/70/006/002/0018/0021

CIRC ACCESSION NO--AP0129469

UNCLASSIFIED

2/2 028

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0129469

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF COMPLEX SURFACE SATURATION WITH B AND CU ON THE UTS, YS, IMPACT STRENGTH, FATIGUE RESISTANCE, DUCTILITY, AND WEAR RESISTANCE OF C STEELS WAS STUDIED. AFTER SATURATION WITH B AND CU THE DUCTILITY OF THE STEEL ROSE, THE FATIGUE STRENGTH REMAINED AT THE SAME LEVEL AS THAT OF UNTREATED SAMPLES, WHILE THE WEAR RESISTANCE EQUALLED THAT OF B SATURATED MATERIAL. THE EFFECT ON THE OTHER CHARACTERISTICS WAS LESS SPECIFIC.

UNCLASSIFIED

AN0012149

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AUTHOR-- GRIBOYEDOVA, G.

TITLE-- DESALINATION INSTALLATION

NEWSPAPER-- SOVETSKAYA ROSSIYA, JANUARY 24, 1970, P 4, COLS 1-4

ABSTRACT-- THE FIRST SOVIET DESALINATION INSTALLATION WAS DEVELOPED ON THE BASIS OF THE RESEARCH CONDUCTED BY L. SMIRNOV, A SCIENCE ASSOCIATE OF THE ODESSA TECHNOLOGICAL INSTITUTE OF FOOD AND REFRIGERATION INDUSTRY. ITS REACTORS PRODUCE CRYSTAL HYDRATES OF WATER AND FREON-12. THE LABORATORY STAGE OF THE EXPERIMENTS WILL BE FOLLOWED BY STUDIES IN A COMMERCIAL PILOT PLANT ON THE SHORES OF THE BLACK SEA.

See

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1/2 015 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--EXPERIMENTAL PREDICTION OF THE COMPOSITION AND PROPERTIES OF
COMPOUNDS USING A COMPUTER -U-
AUTHOR-(02)-SAVITSKIY, YE.M., GRIBULVA, V.B.
COUNTRY OF INFO--USSR
SOURCE--DOKL. AKAD. NAUK SSSR 1970, 190(5), 1147-50 (PHYS CHEM)
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--REFRACTORY COMPOUND, COMPUTER APPLICATION, PHASE DIAGRAM,
PHYSICAL PROPERTY, MECHANICAL PROPERTY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1995/1118 STEP NO--UR/0020/70/190/005/1147/1150
CIRC ACCESSION NO--AT0116584
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--16OCT70

2/2 015

CIRC ACCESSION NO--AT0116584

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN ESSENTIALLY NEW APPROACH TO THE UTILIZATION OF INFORMATION CONCERNING THE CHEM. ELEMENTS, THE PHASE DIAGRAMS, AND COMPN. PROPERTY DIAGRAMS IS UNDERTAKEN BASED ON THE USE OF A COMPUTER. THE SUBSTANCE UNDER INVESTIGATION IS DIVIDED INTO CLASSES ACCORDING TO KNOWN CHARACTERISTICS. THE NATURE OF THE SUBSTANCE IN ACCORD WITH ITS CHARACTERISTICS IS DESCRIBED BY A NUMBER OF CODES AND IS STORED IN THE COMPUTER. DATA FOR 33 CHEM. ELEMENTS AND 79 BINARY DIAGRAMS OF THESE ELEMENTS IS USED FOR THE STUDY AND FROM THIS THE EXISTENCE OF COMPS. OF THE TYPE A SUB3 B, A SUB2 B, AND AB AND THE TYPE OF REACTION INVOLVED IN THEIR FORMATION CAN BE PREDICTED.
FACILITY: INST. MET. IM. BAIKOVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC: 537.712.62

SAVITSKIY, Ye. M., DEVINOVAL', Yu. V., GRIMULYA, V. B.

"An Attempt at Computer Prediction of the Superconductive Transition Points of Some Metallic Compounds"

Moscow, Sverkhprovodyashchiye splavy i soedin.--sbornik (Superconductive Alloys and Compounds--collection of works), "Nauka", 1972, pp 7-22 (from RZh-Radiotekhnika, No 12, Dec '72, abstract No 100964 [p'sum?]).

Translation: The authors consider the results of predicting A_3B type compounds and their properties by using a computer on the basis of data on the electronic structure of the atoms of chemical elements. The work was done by using the methods of pattern recognition. An analysis is made of the interaction of vanadium, niobium and tantalum with elements of the periodic table. Examples are given of forecasting the order of magnitude of T_c for type A_3B compounds as compared with experimental data. It is shown on the basis of these data that the properties of materials can be predicted by computer methods. One illustration, seven tables, bibliography of eight titles.

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UDC 537.312.62

USSR

SAVITSKIY, Ye. M., DEVINGTAL', Yu. V., and GRIBULYA, V. B.

"Recognition of Metal Compounds of the Composition A_3B by Electronic Computer"

Problemy Sverkhprovodyashchikh Materialov [Problems of Superconducting Materials -- Collection of Works], Moscow, Nauka Press, 1970, pp 39-50

Translation: Many superconductors are compounds of the stoichiometric composition A_3B . These include superconductors with the highest transition temperature to the superconducting state. It is known that some of these compounds are formed between low-melting and refractory components in a peritectic reaction, which makes their experimental production quite difficult.

There is therefore interest in determination of the characteristics or criteria for the presence of such compounds.

The use of recognition methods, mainly using computers, allowed certain empirical criteria both for the presence of these compounds and for methods of their formation to be found. Furthermore, these criteria allow the presence or absence of an area of homogeneity in the concentration interval to be indicated.

Examples are presented of recognition of superconducting compounds by computer.

1 figure; 9 tables; 10 biblio. refs.

USSR

UDC 614.715.(477-25)1965-1970

BORIMSKIY, V. K., GRIDCHINA, M. A., and TIMOSHENKO, L. S., Kiev Municipal Sanitary-Epidemiological Station, Kiev

"Characteristics of the Pollution of Atmospheric Air With Dust"

Moscow, Gigiyena i Sanitariya, No 1, 1973, p 108

Abstract: In the City of Kiev, the average yearly concentration of dust in the air was determined in eight locations: Pioneer Park in a mountainous area above the Dnepr (location I); Goloseyevskiy Forest in the forest-part zone (II); Kalinin Sq. in the center of the city at an air elevation of 1.5 m (III); ditto, at an elevation of 20 m (IV); No 8 Nekrasovskaya St., in a residential section with plentiful greenery, situated in the vicinity of an automobile garage (V); No 19 Voloshskaya St., in the old industrial district of Podol with heavy city traffic (VI); No 7 Brest-Litovsk Highway, in the vicinity of large industrial enterprises and in an area in which traffic is heavy (VII); Privokzal'naya Sq., next to a railroad station and to a thermoelectric power plant (VIII). The average yearly dust concentration was 0.21, 0.16, 0.23, 0.14, 0.23, 0.43, 0.35, and 0.40 mg/m³ at I, II, III, IV, V, VI, VII, and VIII, respectively. The lowest fluctuations during the year (0.1-0.2 mg/m³) were observed at I. The lowest concentrations there (0.1-0.2 mg/m³) were recorded in Jan-Feb, when the ground was covered with snow, and the highest (0.3-0.4 mg/m³) in the

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USSR

BORIMSKIY, V. K., et al., *Gigiyena i Sanitariya*, No 1, 1973, p 108

summer during dry spells and in the late fall on foggy days with high humidity. The average yearly concentrations varied from year to year in the 0.14-0.19, 0.19-0.28, 0.13-0.24, and 0.29-0.5 mg/m³ range in the forest-park zone, in the center of the city (Kalinin Sq.), in the residential zone, and in the railroad station and industrial zone, respectively. The maximum permissible concentration of dust in the air is 0.5 mg/m³.

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UDC 621.771.001

USSR

TSELOKOV, A. I., and GRICHKOV, A. I.

Teoriya Prokatiki (Theory of the Rolling Process), "Metallurgiya" Press,
Moscow, 1970, 358 pp

Translation: A great number of experimental and theoretical studies have been carried out during recent years which have substantially broadened previous ideas on the process of metal deformation in rolling.

Characteristic of the modern theory of rolling are the wide use of the theories of the mechanics of deformable bodies, the inclusion of a mathematical apparatus, and new, more accurate methods of experimental investigation.

These achievements in the theory of rolling are the scientific basis for the further development of rolling production, its improvement and intensification, the creation of new technological processes, and highly productive rolling mills.

The results of a series of investigations on the theory of rolling are generalized in this book. The aim was not the broad interpretation of various investigations, although many are of great interest. In general, original work by the authors were used.

Particular attention was given to the modern theory of longitudinal

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USSR

TSELIKOV, A. I., and GRISHKOV, A. I., Teoriya Prokatki, "Metallurgiya" Press, Moscow, 1970, 358 pp

rolling of right-angled profiles.

Earlier published works of A. I. Tselikov are reviewed additions and refinements of individual assumptions.

Many works of A. I. Grishkov are published here for the first time. Among the most important of Grishkov's works, the following should be noted: investigation of widening and contact stresses; analysis of contact forces equilibrium, theoretical investigation of nonuniform distribution of metal motion at the source of deformation, determination of contact friction energy, etc.

The authors hope that the book will be useful in helping technologists in more accurately calculating the rolling process, and in assisting designers in determining the forces applied on the rollers, on which depend the roller mill dimensions, the power of its drive, and the allowable deformations of the rolled metal.

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UDC 621.384.664

GALYAYEV, N. A., GOLOVINA, N. I., GRACHEV, M. I., GRIDASOV, V. I., GUBRIYENKO, K. I., YEREMENKO, Ye. V., ZAPOL'SKIY, V. N., ZELENOV, B. A., KOTOV, V. I., KUZNETSOV, V. S., MERKER, E. A., MYZNIKOV, K. P., PUCHUGIN, V. A., PRILEPIN, A. A., SELEZNEV, V. S., SEREBRYAKOV, B. A., KHODYREV, Yu. S., and CHEPEGIN, V. N.

"Proton Beam With an Impulse of Up to 70 Gev/s Elastically Dispersed Inside a Target"

Leningrad, Zhurnal Tekhnicheskoy Fiziki, Vol 42, No 7, 1972, pp 1437-1445

Abstract: This paper discusses the operation of a channel built into the French liquid-hydrogen Mirabelle chamber for the accelerator of the Institute of High-Energy Physics (IFVE). The function of the channel is to form pure beams of pi and k mesons, and antiprotons, in a broad range of impulse magnitudes under the action of a high-frequency separator. The secondary particles are generated on the inside of a target placed in the path of a proton beam diverted from the accelerator with an energy of 70 Gev. By using a fast system for aiming the proton beam at the target, together with a kicker magnet in the channel, the required number of particles passing through the chamber can be provided. The optical system of the channel is described with the
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USSR

GALYAYEV, N. A., et al., Zhurnal Tekhnicheskoy Fiziki, Vol 42, No 7, 1972,
pp 1437-1445

aid of diagrams of two possible variants; the beam aiming system and the particle dosage for the bubble chamber are also explained. The authors thank R. M. Sulyayev, P. F. Yermolov, A. M. Moiseyev, M. I. Solov'yev, I. A. Danil'chenko, Ye. A. Parshin, V. M. Kolesnik, A. N. Aleyev, V. D. Rudko, and V. M. Gorshkov for their assistance.

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1/2 034 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--COMPLEXES OF SCANDIUM OXALATE WITH O PHENANTHROLINE -U-
AUTHDR--(05)-IVANOVEMIN, B.N., GRIDASOVA, R.K., ZAYTSEV, B.YE., VALKARSEL,
G., EZHOV, A.I.
COUNTRY OF INFO--USSR
SOURCE--ZH. NEORG. KHIM. 1970, 15(3), 674-7
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--METAL COMPLEX COMPOUND, CRYSTAL STRUCTURE, ORGANOMETALLIC
COMPOUND, ORGANIC COMPLEX COMPOUND, IR SPECTRUM, BENZENE DERIVATIVE,
OXALATE, SCANDIUM COMPOUND
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1993/0678 STEP NO--UR/0078/70/015/003/0674/0677
CIRC ACCESSION NO--AP0113549
UNCLASSIFIED

2/2 034

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0113549

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A MIXT. OF 1:1 MOLE RATIO OF
NASC(C SUB2 O SUB4) SUB2.2-H SUB2 O WITH PHEN (O PHENANTHROLINE) IN AQ.
SOLN. GAVE CRYST. SC SUB2 (C SUB2 O SUB4)SUB3 2PHEN (I) AS PPT., WITH
ALPHA 1.514 AND GAMMA 1.616. THE IR SPECTRUM OF I REVEALS THAT C SUB2 O
SUB4 PRIME2 NEGATIVE AS WELL AS PHEN ARE COORDINATED TO SC. A STRUCTURE
IS PROPOSED FOR I.

REF ACCEPTED

1/2 031 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--ANOMALIES OF MAGNETIC AND ELECTRICAL PROPERTIES IN LITHIUM AND
ALUMINUM FERRITE -U-
AUTHOR--(04)-BELGV, K.P., GORYAGA, A.N., GRIDASOVA, T.YA., LAVORVSKAYA,
O.I.
COUNTRY OF INFO--USSR
SOURCE--FIZ. TVERD. TELA 1970, 12(1), 277-9
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS, PHYSICS
TOPIC TAGS--LITHIUM, ALUMINUM, IRON, MAGNETOSTRICTION, ELECTRIC
CONDUCTIVITY, THERMAL EFFECT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1980/0250 STEP NO--UR/0181/70/012/001/0277/0279
CIRC ACCESSION NO--AP0048524
UNCLASSIFIED

2/2 031

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0048529

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SPECIMEN WAS MAGNETIZED AT 4.2 DEGREES K IN FIELDS LESS THAN OR EQUAL TO 50 KOE. UNDER THESE CONDITIONS, THE SPECIMEN HAS NO MAGNETIC SATN. THIS CAN BE RELATED EITHER TO THE EXISTENCE OF TRIANGULAR ORDERING OR TO A LARGE MAGNETIC ANISOTROPY. CALCNS. SHOW THAT THE 1ST POSSIBILITY IS CORRECT. THE TEMP. DEPENDENCES OF THE ELEC. RESISTANCE AND MAGNETORESISTENCE OF THE FERRITE WERE STUDIED. MAX. WERE OBSD. ON THE CURVE SIGMA VERSUS TAU. ONE OF THEM IS DETD. BY THE TRUE MAGNETIZATION NEAR THE CURIE TEMP., AND THE 2ND OCCURS AT TEMPS. WHERE THERE IS AN ANOMALY ON THE CURVE IN R VERSUS (1-TAU). THE EXISTENCE OF THE 2ND MAX. ON THE CURVE DELTA R-R(TAU) IS APPARENTLY RELATED TO A DISTORTION OF THE NONCOLLINEAR MAGNETIC STRUCTURE AND ITS TRANSITION INTO A COLLINEAR MAGNETIC STRUCTURE. TEMP. DEPENDENCES OF THE COERCIVE FORCE AND MAGNETIZATION IN WEAK FIELDS DO NOT EXHIBIT ANY ANOMALIES.

UNCLASSIFIED

USSR

UDC 621.396.674.3

GRIDIN, A. N.

"Studying a Reactively Loaded Vibrator With Current Distribution According to the Traveling Wave Law"

Tr. Mosk. energ. in-ta (Works of the Moscow Power Engineering Institute), 1972, vyp.119, pp 150-157 (from RZh-Radiotekhnika, No 11, Nov 72, Abstract No 11 B31)

Translation: A vibrator is studied in which a traveling wave regime is set up by connecting lumped, reactive resistance into each arm. The tests utilized one arm of an antenna where the arm is located vertically above a metallic plane. Amplitude and phase measurements were carried out by using a loop sonde which moved along the longitudinal slit in the tubular body of the vibrator. It is shown that a wideband antenna can be achieved by tuning the vibrator to a traveling wave regime with the aid of a reactive load. Original article: eight illustrations and seven bibliographic entries. N.S.

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- 8 -

1/2 049 UNCLASSIFIED PROCESSING DATE--20NOV70
 TITLE--DETERMINING IONOSPHERIC EFFECTS ARISING DURING THE PROPAGATION OF
 RADIO WAVES FROM SPACED POINT REGISTRY OF THE FARADAY AND DOPPLER
 AUTHOR--(05)--MISYURA, V.A., KROKHMALNIKOV, YE.B., ZINCHENKO, G.M.,
 BIRYUKOV, G.A., GRIDIN, A.N.
 COUNTRY OF INFO--USSR
 SOURCE--MUSCOA, GEOMAGNETIZM I AERONOMIYA, VOL X, NO 3, 1970, PP 428-434
 DATE PUBLISHED-----70

SUBJECT AREAS--ATMOSPHERIC SCIENCES, NAVIGATION, MISSILE TECHNOLOGY
 TOPIC TAGS--RADIO WAVE PROPAGATION, IONOSPHERIC DISTURBANCE, GEOPHYSIC
 ROCKET, RADIO TRANSMITTER, DOPPLER EFFECT, FARADAY EFFECT, COHERENT
 SIGNAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAME--3005/0549 STEP NO--UR/0203/70/010/003/0428/0434

CIRC ACCESSION NO--AP0132735
 UNCLASSIFIED

2/2 049

UNCLASSIFIED

PROCESSING DATE--ZONCVTC

CIRC ACCESSION NO--AP0132735

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIS PAPER DESCRIBES A METHOD FOR DETERMINING THE EFFECTS ARISING DURING RADIO WAVE PROPAGATION IN THE IONOSPHERE. THE AUTHORS GIVE INFORMATION ON VERTICAL IONOSPHERIC REFRACTION, IONOSPHERIC CORRECTIONS FOR THE OPTICAL AND GROUP PATH AND CORRECTIONS FOR THE DOPPLER SHIFT IN THE FREQUENCY OF COHERENT RADIO WAVES EMITTED BY TRANSMITTERS CARRIED ON GEOPHYSICAL ROCKETS. MORNING MEASUREMENTS WERE MADE AT FREQUENCIES OF 48 AND 144 MC-SEC IN SEPTEMBER AND OCTOBER 1965 IN THE MIDDLE LATITUDES OF THE SOVIET UNION FROM THREE STATIONS LOCATED SIMILAR TO 200 KM FROM THE ROCKET LAUNCHING POINT. THE RESULTS OF MEASUREMENTS OF THE REDUCED PHASE DIFFERENCE AND THE REDUCED DIFFERENCE IN DOPPLER FREQUENCY SHIFTS, AS WELL AS THE ROCKET SIGNAL FARADAY EFFECT AT TWO COHERENT FREQUENCIES, ARE GIVEN.

UNCLASSIFIED

GRIDIN, A.S.

MEDICINE

TECHNICAL TRANSLATION

FTC-HT-23-461-70

ENGLISH TITLE: APERTURE CHARACTERISTICS OF PHOTOELECTRIC DETECTORS

FOREIGN TITLE: APERTURNYYE KHAARAKTERISTIKI FOTOPRIYEMNINOY

AUTHOR: A. S. Gridin and E. D. Pankov

Handwritten: Pripisaniye k Rukovodstvu

SOURCE: IVUZ. PRIDOROSTROYENIYE, Vol. 11, No. 1, 1968, pp 105-108

Translated for FSTC by ACSEI

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USSR

UDC 621.039.5.001.4

BEREZOVSKIY, V. V., BYKOVSKIY, Yu. A., GRIDIN, V. A., KOKOREV, L. S.,
SHELAGIN, Yu. N.

"Flaw Detection on a Fuel Element Model by Means of a Laser"

V sb. Vopr. teplofiz. yadern. reaktorov (Problems in the Thermal Physics
of Nuclear Reactors--collection of works), vyp. 3, Moscow, Atomizdat,
1971, pp 93-100 (from RZh-Elektrotekhnik i Energetika, No 9, Sep 71,
Abstract No 9U188)

Translation: The authors discuss the use of an infrared CO₂-N₂-He laser
with a wavelength of 10.6 μ. The parameters of laser emission enabled
focusing on a fairly small area (~0.001 mm²), thus improving the reso-
lution of thermal devices. A laser beam with a power of 6 W in the con-
tinuous mode was used to detect flaws (pits in the casing and peeling
of the fuel in nuclear fuel elements). Peeling in the form of a spot of
arbitrary shape with a concentrated heat source is considered. The tem-
perature of the casing rises when the laser beam hits a region where
there is peeling. A pickup determines the temperature rise. It is found

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USSR

BEREZOVSKIY, V. V., et al., Vopr. teplofiz. yadern. reaktorov, vyp. 3, Moscow, Atomizdat, 1971, pp 93-100

that an increase in the rate of beam displacement entails an increase in the required power of the source, a rise in maximum temperature and more severe requirements for the time lag of the temperature pickup. Emission from a laser with a power of 1 kW was focused by a field of $3 \cdot 10^5$ W/cm² on an area of $2 \cdot 10^{-3}$ mm². Three illustrations, two tables, bibliography of five titles. A. M. Bovshovskiy.

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Masers and Lasers

USSR

UDC 621.039.5.001.4

BEREZOVSKIY, V. V., BYKOVSKIY, YU. A., GRIDIN, V. A., KOKOREV, L. S., SHELAGIN, YU. N.

"Laser Detection of Defects in a Fuel Element Model"

Vopr. teplofiz. yadern. reaktorov -- V sb. (Problems of Thermo-physical Nuclear Reactors -- Collection of Works), vyp. 3, Moscow, Atomizdat Press, 1971, pp 93-100 (from RZh-Teploenergetika, No 9, Sep 71, Abstract No 9U188)

Translation: Utilization of a $\text{CO}_2\text{-N}_2\text{-He}$ gas infrared laser with a wavelength of 10.6 microns is discussed. The parameters of the laser radiation permitted focusing of it on a sufficiently small area ($\sim 0.001 \text{ mm}^2$) and, at the same time, increasing the resolution of the thermal devices. A 6 watt laser beam was used to detect defects (holes in the jacket, exfoliation of the fuel). Exfoliation in the form of a spot of arbitrary shape with a concentrated heat source is investigated. When the laser beam hits the exfoliation region, the jacket temperature rises. The rise in temperature is recorded by a sensor. It is established that with an increase in the beam displacement rate, the necessary power supply increases, the maximum temperature increases, and the requirements on the inertia of the temperature sensor increases. Focusing one kilowatt
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USSR

BEREZOVSKIY, V. V., et al., Vopr. teplofiz. yadern. reaktorov, vyp. 3, Moscow, Atomizdat Press, 1971, pp 93-100

of laser radiation created a field of $3 \cdot 10^5$ watts/cm² over an area of $2 \cdot 10^{-3}$ mm².
There are 3 illustrations, 2 tables and a 5-entry bibliography.

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1/2 012 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--EVIDENCE FOR AN INTERMEDIATE MECHANISM IN INTERACTIONS BETWEEN
COMPLEX NUCLEI -U-
AUTHOR-(03)-GRIDNEV, G.F., VOLKOV, V.V., WILCZYNSKI, J.
COUNTRY OF INFO--USSR G
SOURCE--NUCL. PHYS. A 1970, 142(2), 385-91
DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ENERGY SPECTRUM, ANGULAR DISTRIBUTION, COMPOUND NUCLEUS,
NUCLEAR REACTION, OXYGEN ISOTOPE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1976/1011

STEP NO--NE/0000/70/142/002/0385/0391

CIRC ACCESSION NO--AP0042891

UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0042891

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE ENERGY SPECTRA OF THE PICK UP
(PRIME16 O, F), (PRIME16 O, NE), AND (PRIME16 O, NA) REACTION PRODUCTS
ON PRIME27 AL, PRIME51 V, AND PRIME93 NB TARGET NUCLEI WERE MEASURED FOR
SEVERAL ANGLES. CHARACTERISTIC MAX. IN THE SPECTRA, PLACED MUCH LOWER
IN ENERGY THAN THE PRODUCTS OF THE DIRECT TRANSFER REACTIONS WERE OBSD.
THE APPEARANCE OF THESE MAX. IS TENTATIVELY INTERPRETED AS RESULTING
FROM AN INTERMEDIATE REACTION MECHANISM, WHICH SHOULD PLAY AN IMPORTANT
ROLE IN A DEFINED REGION OF THE ANGULAR MOMENTUM VALUES.
FACILITY: JOINT INST. NUCL. RES., DUBNA, USSR.

UNCLASSIFIED

1/2 019 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--LIMITING ENERGY RESOLUTION OF THIN DETECTORS OF THE DE-DX TYPE IN
THE E SUBALPHA EQUALS 5-9 MEV RANGE -U-
AUTHOR--(04)-AVDEYCHIKOV, V.V., GRIDNEV, G.F., LOZHKIN, O.V., PERFILOV,
N.A.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK SSSR, SER. FIZ. 1970, 34(1), 210-17
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--SEMICONDUCTOR DETECTOR, SILICON SEMICONDUCTOR, ALPHA PARTICLE
DETECTOR, ALPHA SPECTRUM
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1991/1045 STEP NO--UR/0048/70/034/001/0210/0.117
CIRC ACCESSION NO--AP0110735
UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--30 OCT 70

CIRC ACCESSION NO--AP0110735

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPTL. STUDIES OF 10.8, 13.3, 23.1, 25.2, AND 39.2 MU THICK SI DETECTORS OF THE DE-DX TYPE WERE CARRIED OUT WITH STD. ALPHA PARTICLE SOURCES. A FORMULA FOR THE LIMITING ENERGY RESOLN. IS GIVEN.

UNCLASSIFIED

1/2 033 UNCLASSIFIED PROCESSING DATE--16OCT70
 TITLE--NEW ISOTOPES FLUORINE 23, FLUORINE 24, NEON 25, AND NEON 26,
 PRDUCED IN NUCLEAR REACTIONS WITH HEAVY IONS -U-
 AUTHOR--(05)--ARTUKH, A.G., AVDEICHIKOV, V.V., GRIDNEV, G.F., MIKHEEV, V.L.,
 VOLKOV, V.Y.
 COUNTRY OF INFO--USSR

SOURCE--PHYS. LETT. B 1970, 31(3), 129-30

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--ION BOMBARDMENT, HEAVY NUCLEUS, THORIUM, NEON ISOTOPE, ISOTOPE SEPARATION, MASS SPECTROSCOPY, PULSE AMPLITUDE, FLOURINE ISOTOPE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1982/0675

STEP NO--NE/0600/70/031/003/0129/0130

CIRC ACCESSION NO--AP0052134

UNCLASSIFIED

2/2 033

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0052134

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE BOMBARDING OF A 4.4-MG-CM
 PRIME2 PRIME232 TH TARGET WITH 174-MEV PRIME22 NE IONS PRODUCED N RICH
 PRIME23 F, PRIME24 F, PRIME25 NE, AND PRIME26 NE. MAGNETIC RIGIDITY
 (BR) SPECTROMETRY COMBINED WITH PULSE HEIGHT (DELTA E AND E-DELTA E)
 ANAL. OF 2-SI DETECTORS DETD. THE MASS AND CHARGE OF THE DETECTED IONS.
 ISOTOPIC YIELDS WERE DETD. AT BR-R SUBEL R EQUALS 1.159 AND 1.138 AND
 PRIME22 NE PARTICLE FLUXES OF (9.2 AND 2.3) TIMES 10 PRIME15, RESP.; THE
 B SUBEL R IS THE MAGNETIC RIGIDITY OF THE ELASTICALLY SCATTERED PRIME22
 NE IONS.

FACILITY: JOINT INST. NUCL. RES., DUBNA, USSR.

UNCLASSIFIED

1/2 014 UNCLASSIFIED PROCESSING DATE--090CT70
TITLE--COULOMB STRIPPING IN A WIDE ENERGY RANGE OF EMITTED PROTONS -U-

AUTHOR--(05)--LITVIN, V.F., NEMILOV, YU.A., KRASNOV, L.V., GRIDNEV, K.A.,
ZHEREBTSOVA, K.I.

COUNTRY OF INFO--USSR

SOURCE--YAD. FIZ. 1970, 11(2), 273-6

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--EXCITED NUCLEUS, NICKEL ISOTOPE, DEUTERON BOMBARDMENT,
EXCITATION ENERGY, ELECTRON TRANSITION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PRUXY REEL/FRAME--1980/0380

STEP NO--UR/0367/70/011/002/0273/0216

CIRC ACCESSION NO--AP0048652

UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--090CT70

CIRC ACCESSION NO--AP0048652

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SPECTROSCOPIC FACTORS WERE OBTAINED FOR TRANSITIONS TO LEVELS OF THE PRIME63 NI NUCLEUS BY USING EXCITATION ENERGIES IS SMALLER THAN 5 MEV. THE SPECTROSCOPIC FACTORS FOR TRANSITIONS OBTAINED BY USING EXCITATION ENERGIES UP TO 3 MEV COINCIDE WITH THE VALUES OBTAINED FROM EXPTS. AT "OVER BARRIER" D ENERGIES (15 MEV). AT HIGHER EXCITATION ENERGIES (L EQUALS 2, E SUBD EQUALS 4.096 MEV), ANOMALOUSLY LARGE SPECTROSCOPIC FACTORS ARE OBTAINED.
FACILITY: LENINGRAD. GOS. UNIV., LENINGRAD, USSR.

UNCLASSIFIED

USSR

UDC 620.18:669.14

GRIDNEV, V. N., KONONENKO, V. A., LARIKOV, L. N., MESHKOV, YU. YA.,
RAFALOVSKIY, V. A., and YURCHENKO, YU. F., Institute of Metal Physics, Academy
of Sciences Ukr SSR

"Effect of Plastic Deformation on the Tempering Processes of a Quenched Steel"

Kiev, Metallofizika, No 39, 1972, pp 51-54

Abstract: The features taking place in the tempering of martensite by the simultaneous action of heating steel 70 to 250°C while imparting plastic deformation by drawing (almost 10%) were studied. From the obtained calorimetric and dilatometric data it follows that during this treatment, along with acceleration of the metastable phase (martensite and austenite) decomposition, being accompanied by lowering of defect density from hardening origin and weakening of the steel, another process occurs--that of martensite decomposition products as a result of plastic deformation yielding the accumulation of new defects which increase the internal energy of the system and stimulate a more complete occurrence of the phenomena of recrystallization during repeated heating. 2 figures, 7 bibliographic references.

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USSR

UDC 539.292.536.425

BURDIN, V. V., GRIDNEV, V. N., and MINAKOV, V. N., Institute of Metal Physics,
Academy of Sciences ~~URF~~ ~~SSR~~

"Carbon Content in the Ferrite of Carbon Steels"

Kiev, Metallofizika, No 39, 1972, pp 85-88

Abstract: The change of the alpha-phase lattice parameters for rapid heating (up to 500°/sec) and cooling (up to 100°/sec) of carbon steels was studied with the use of rapid x-ray examination. Results of this work show that for rapid heating and cooling of carbon steels it is not possible to dissolve more carbon in the alpha-phase than indicated by the phase diagram for the steel. The hypothesis that the QP and GP lines on the Fe-C phase diagram can be extrapolated to values corresponding to a large carbon content is not confirmed. 4 figures. 20 bibliographic references.

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USSR

UDC 689.017.3

GRIDNEV, V. N., OSHKADEROV, S. P., and SMIRNOV, A. M., Institute of Metal Physics, Academy of Sciences Ukr SSR

"Features of Austenite Formation During Rapid Heating of Cold-Worked Steel KVK-42 (42Kh2NGSM)"

Kiev, Metallofizika, No 40, 1972, pp 37-45

Abstract: The effect of rapid heating rates (up to 3000°/sec) on the temperature conditions for the alpha-gamma transformation is drawn (up to 75% reduction) KVK-42 steel of the martensite class was studied. It was shown that with an increased degree of deformation there occurs a lowering of the critical point in comparison with the point for annealed steel, whereupon the effect of lowering is greater the higher the degree of deformation and heating rate. A temperature-time diagram was plotted for austenite formation in the given steel for conditions of continuous heating in the interval of heating rates from 50 to 2700°/sec. The obtained data are discussed from the viewpoint of the effect of structural defects on the kinetics of austenite formation. 6 figures, 5 bibliographic references.

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USSR

UDC 669.017.3

GRIDNEV, V. N., IVASISHIN, O. M., and OSHKADEROV, S. P., Institute of Metal Physics, Academy of Sciences Ukr SSR

"Austenite's Inheritance of the Alpha-Phase Defect Structure in the Rapid Heating of U9 Steel"

Kiev, Metallofizika, No 39, 1972, pp 69-75

Abstract: The conditions of rapid annealing (10000/sec) of U9 deformed steel (0-86%), done prior to deformation in the tempered, normalized, and annealed states, were studied by dilatometric and thermal analyses, which made it possible to obtain structures with different interplate distances. Removal of the effects of prior plastic deformation proceeds in three steps: in the temperature interval of the alpha-phase, in the alpha-gamma-phase transformation, and in the gamma-phase. The degree of prior deformation in the studied limits has only a quantitative effect, and does not change the overall picture of annealing.

During rapid heating the austenite inherits a defect structure of the deformed alpha-phase, whereupon the increased defectiveness of austenite is preserved almost to its recrystallization temperature. 5 figures, 7 bibliographic references.

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USSR

UDC 532.4.019.3

GRIDNEV, V. N., and KUSHNAREVA, N. P., Kiev

"Influence of Structure on Internal Friction of Nickel and Nickel Alloy Single Crystals"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 2, Mar-Apr 71, pp 75-79

Abstract: A comparison is presented between the changes in the temperature dependence of internal friction and the structural state of single crystals of nickel and the alloy Ni-Mo (1.1 at.%) and type 79NM4 permalloy. In single crystals of pure nickel, when fragmentation develops, the appearance of a broad maximum is observed in the 630-650°C area. In single crystals of the alloys, no peaks are noted upon heating up to 950°. The origin of the Q-1 background, as well as the dislocation structure of the material, results from the presence of grain boundaries. Studies are performed by the method of low-frequency twisting oscillations at up to about 1,000°C. The peak parameters observed in the pure nickel correlate satisfactorily with the results of calculations, confirming the possibility of the development of relaxation maxima with nonconservative displacement of the dislocations of low-angle grains. 1/1

USSR

UDC 532.4.019.3

GRIDNEV, V. N., and KUSHNAREVA, N. P., Kiev

"Influence of Structure on Internal Friction of Nickel and Nickel Alloy Single Crystals"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 2, Mar-Apr 71, pp 75-79

Abstract: A comparison is presented between the changes in the temperature dependence of internal friction and the structural state of single crystals of nickel and the alloy Ni-Mo (1.1 at.%) and type 79NM4 permalloy. In single crystals of pure nickel, when fragmentation develops, the appearance of a broad maximum is observed in the 630-650°C area. In single crystals of the alloys, no peaks are noted upon heating up to 950°. The origin of the Q-1 background, as well as the dislocation structure of the material, results from the presence of grain boundaries. Studies are performed by the method of low-frequency twisting oscillations at up to about 1,000°C. The peak parameters observed in the pure nickel correlate satisfactorily with the results of calculations, confirming the possibility of the development of relaxation maxima with nonconservative displacement of the disloca-

USSR

UDC 669.17

GRIDNEV, V. N., MESHKOV, YU. YA., MINAKOV, V. N., and OSHKADEROV, S. P.,
Institute of Metal Physics, Academy of Sciences UkrSSR


"The Characteristics of High-Speed Austenization of Hypoeutectoid Steels"

Kiev, Metallofizika, No 31, 1970, pp 121-126

Translation: The characteristics of the process of formation of austenite in annealed, hardened, and highly tempered carbon steels of a hypoeutectoid composition in a heating rate interval from 20 to 7000 degrees per second were studied by overall investigation methods. It is shown that the temperature conditions of austenite formation in high-speed heating depend on the initial structural state. When steel with an annealed structure is heated at a rate of more than 500 degrees per second, the transformation occurs according to a two-stage pattern, when first the pearlite and then the ferrite steel components are transformed into austenite. Bibliography: 8 entries, 3 illustrations.

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1/2 023 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--DEFECTS IN THE CRYSTAL STRUCTURE OF UNTEMPERED HIGH CARBON
MARTENSITE -U-
AUTHOR-(02)-GRIDNEV, V.N., PETROV, YU.N. 
COUNTRY OF INFO--USSR
SOURCE--UKR. FIZ. ZH. (RUSS. ED.) 1970, 15(2), 217-23
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS
TOPIC TAGS--HIGH CARBON STEEL, MARTENSITIC TRANSFORMATION, CRYSTAL
DISLOCATION, STEEL QUENCHING, MANGANESE STEEL, ELECTRON DIFFRACTION

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/1929 STEP NO--UR/0185/70/015/002/0217/0223
CIRC ACCESSION NO--AP0118891
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--23OCT70

2/2 023

CIRC ACCESSION NO--AP0118891
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. A SMALL ADMIXT. OF MN IN THE SOLID SOLN. OF ALPHA IRON SUPERSATD. WITH C LOWERED THE MARTENSITIC TRANSFORMATION TEMP. OF AUSTENITIC STEEL TO UNDER ROOM TEMP. CONSEQUENTLY, AFTER QUENCHING IN WATER, THE STEEL SAMPLE CONTG. 115PERCENT C AND 1.9PERCENT MN WAS THE ONLY AUSTENITIC MODIFICATION OBTAINED. THIS WAS COOLED DURING ELECTRON DIFFRACTION SCANNING FROM ROOM TEMP. TO MINUS80DEGREES UNTIL MINUS 100DEGREES SO THAT THE UNINTERRUPTED STUDY OF THE MARTENSITIC TRANSFORMATION AND OF THE CREATED MARTENSITE WAS THUS MADE POSSIBLE WITHOUT WARMING TO ROOM TEMP. THE UNTEMPERED MARTENSITE CRYSTALS CREATED AT MINUS80 TO MINUS 100DEGREES HAVE A HIGH D. OF LINEAR AND PLANAR DEFECTS. THE DISLOCATION D. IN THIN FOILS OF HIGH C MARTENSITE CAN BE SUBSTANTIALLY LOWERED DUE TO THE LOSS OF A PART OF THE DISLOCATIONS AFTER ELECTROPOLISHING, UNLESS SPECIAL PRECAUTIONS FOR THEIR FIXATION ARE TAKEN. THIN STRIPS OF FCC. STRUCTURE WERE OBSD. IN THE (110) PLANES. TWO SYSTEMS OF PARALLEL DISLOCATIONS WERE OBSD., SCREW AND EDGE DISLOCATIONS WITH THE BURGERS VECTOR A-2 MEAN VALUE OF 111. THE DISLOCATION D. WAS GREATER THAN OR EQUAL TO 10 SUB11 CM PRIME NEGATIVE 2. THE DISLOCATION NET DIVIDES THE MARTENSITIC CRYSTAL INTO BLOCKS SIMILAR TO 100 ANGSTROM EACH. BEYOND THE DISLOCATIONS, THIN TWINS OF THE SYSTEMS (112) MEAN VALUE OF 111 AND (110) MEAN VALUE OF 110 WERE OBSD.

FACILITY: INST. METALLOFIZ., KIEV, USSR

UNCLASSIFIED

USSR

UDC 533.652./661.013

6
GRIDNEV, V. P.

"Optimal Climb Trajectory of an Aircraft"

Sb. nauchn. rabot aspirantov. Un-t družby narodov im. Patrisa Lumumba.
Fak. fiz.-matem. i yestestv. n. (Collection of Scientific Works of Aspi-
rants. University of People's Friendship imeni Patrice Lumumba. Faculty of
Physicomathematical and Natural Sciences), 1969, No 6, pp 105-110 (from
RZh-Mekhanika, No 4, Apr 70, Abstract No 4B357)

Translation: The problem of the optimal expenditure of fuel in the trajectory of climb of an aircraft in a vertical plane in a homogeneous gravitational field of a plane earth is considered for Mach numbers greater than 5. The thrust and fuel expenditure rate are considered as functions of altitude and Mach number and are represented in the form of second degree interpolation polynomials. The Polar is assumed to be independent of the Mach number. The optimal law for the change in velocity with height is sought by an indirect method using Euler equations. 7 references. G. S. Aronin.

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USSR

UDC 621.315.592:546.28

ARUSHANOV, A. Ya., GRIDNEVA, G. N., and YUMATOV, K. A.

"Autoepitaxia of Silicon During Vaporization by Electron Beam in Ultrahigh Vacuum"

V sb. Protsessy rosta kristallov i plenok poluprovodn. (Procedures for the Growth of Semiconductor Crystals and Films -- Collection of Works), Novosibirsk, 1970, pp 238-245 (from RZh-Elektronika i yeye primeneniye, No 7, July 1971, Abstract No 7B100)

Translation: Autoepitaxial layers of Si are obtained by the deposition method in a vacuum of 10^{-5} -- $5 \cdot 10^{-9}$ mm of mercury. In order to assure high deposition rates, vaporization of the Si is conducted with the aid of a sharp-focused electron beam. The substrates are placed at 50--60 mm from the molten Si on a massive Mo disk which is heated by an electron gun. As substrates n-type Si wafers are used of (111) orientation, 25 mm in diameter and 0.3 mm thick with a resistivity of 80--100 ohm.cm, which are subjected beforehand to mechanical polishing with subsequent degreasing, or are chemically polished. Immediately preceding deposition, the substrates are briefly heated at increased temperatures. The process of deposition is conducted at a temperature of the substrate of 1100--1300° C and a deposition rate of 0.01--2.5 micrometer/min. The thickness of the film is 3--60 micrometer. It is shown that the density of packing defects depends to a considerable degree on the deposition rate, the vacuum in the working chamber, and the substrate temperature. The assumption is confirmed concerning an extension of the deposition rate during which perfect layers

USSR

ARUSHANOV, A. Ye., et al., Protsessy rosta kristallov i plenok poluprovodn.
(Procedures for the Growth of Semiconductor Crystals and Films -- Collection
of Works), Novosibirsk, 1970, pp 238-245 (from RZh-Elektronika i yeye
primeneniye, No 7, July 1971, Abstract No 7B100)

are obtained, with an improvement of the vacuum. It is found that conditions of growth determine the properties of the Si film. In a vacuum of 10^{-8} -- 10^{-9} mm of mercury, layers practically without defects are obtained of n- and p-type Si. The resistivity of p-type film is 200--300 ohm.cm. On the basis of the monocrystalline layers obtained, laboratory specimens were prepared of p-n junctions of the type "film-film" with reverse voltage on the order of 500 v. & ref. V.G.

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Acc. Nr.: AM0046211

Ref. Code: UR0000

6

Preface		3
<u>Gridushko, V. I.</u>	Investigation of Reliability of Freight Cars and Effectiveness of Their Maintenance	
I	Connection Between Reliability of Cars and Maintenance of the Railroad Stock	4
II	Results of Experimental Investigations of Reliability and Analysis of Car Maintenance	30
III	Restoration of Useful Life of Cars and Substantiation of the Possibility of Increasing Train Runs Without Technical Inspection and Repairs	47
<u>Khil'chenko, V. P.; Nezzovorova, G. G.</u>	Rational Distribution and Improvement of Operation of Stations for Preparation of Cars for Loading	66
<u>Linchenko, V. K.</u>	Selection of Rational Mechanization Means and Improvement of Efficiency of Their Utilization in Preparation of Cars for Loading	99

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Reel/Frame

18

AM0046211

Moscow Vsesoyuznyy Nauchno-Issledovatel'skiy Institut Zheleznodorozhnogo Trans-
porta.

Trudy Nr 390. Improvement of Organization of Maintenance of Freight Cars
(Sovershenstvovaniye organizatsii tekushchego sodержaniya gruzovykh vagonov)
Moscow, Transport, 1970, 117 pp (SL:TFlu M85.9t)

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USSR

MARKIN, V. S., GRIFOR'YEV, P. A., and YERMISHKIN, L. N., Institute of Electrochemistry, Academy of Sciences USSR, Moscow, and Institute of Biological Physics, Academy of Sciences USSR, Pushchino

"Direct Passage of Ions Through Lipid Membranes. I. Mathematical Model"

Moscow, Biofizika, Vol 16, No 6, Nov/Dec 71, pp 1,011-1,018

Abstract: A mathematical model containing seven parameters -- constant of ion diffusion into the membrane, constant of ion diffusion out of the membrane, saltatory velocity of ions jumping from one potential pore in the membrane to another, pore width coefficient, surface capacitance, volume capacitance, and saturation concentration -- is established. The parameters are measured under the given experimental conditions, and the figures are substituted into the model to calculate the permeability of a lipid membrane to any lipid-soluble ions. Equations for volt-ampere curves, admittance, and the coefficient of partition between water and lipid are given. Tests suitable for verifying the theory are suggested.

1/1

- 2 -

1/2 012 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--STUDY OF TITANIUM AND ZIRCONIUM COMPLEXES WITH OXYACIDS BY THE
EXTRACTION METHOD -U-
AUTHOR-(02)-PYATNITSKIY, I.V., GRIGALASHVILI, K.I.
COUNTRY OF INFO--USSR
SOURCE--SOBOSHCH. AKAD. NAUK GRUZ. SSR; 57: 53-6(JAN 1970)
DATE PUBLISHED--JAN70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--TITANIUM COMPOUND, ZIRCONIUM COMPLEX, HYDROXYL RADICAL,
SUCCINIC ACID, COMPLEX COMPOUND
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0906 STEP NO--UR/0251/70/057/000/0053/0056
CIRC ACCESSION NO--AP0124567
UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124567

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE COMPOSITION AND STABILITY OF TITANIUM COMPLEXES WITH GLYCERIC, GLYCOLIC, AND DIHYDROXYTARTARIC (INDEXED AS TETRAHYDROXYSUCCINIC) ACIDS AND ZIRCONIUM COMPLEXES WITH LACTIC ACIDS WERE STUDIED BY THE EXTRACTION METHOD IN A LARGE INTERVAL OF PH. THE CONSTANTS OF HYDROLYTIC INSTABILITY WERE CALCULATED. FACILITY: TBILISI STATE UNIV., USSR.

UNCLASSIFIED

USSR

UDC: 661.422

RYATNITSKIY, I.V., and GRIGALASHVILI, K.I., Tbilisi State University, Tbilisi, Committee for Higher and Secondary Education Georgian SSR; Kiev State University imeni T.G. Shevchenko, Kiev, Ministry of Higher and Secondary Specialized Education Ukrainian SSR

"Study of Titanium and Zirconium Complexes With Hydroxyacids by the Extraction Method"

Tbilisi, Soobshcheniya Akademii Nauk Gruzinskoy SSR, Vol 57, No 1, Jan 70, pp 53-56

Abstract: The composition and stability of titanium complexes with glyceric, glycolic and dihydroxytartaric acids and a zirconium complex with lactic acid were studied by the extraction method in both acidic and basic solutions. Constants of hydrolytic instability calculated: titanium glyceric acid complex in acid medium, $1.5 \cdot 10^{-15}$; titanium glyceric acid complex in basic medium, $1.0 \cdot 10^{-31}$; titanium glycolic acid complex in acid medium, $1.5 \cdot 10^{-15}$; titanium dihydroxytartaric acid complex in acid medium, $8.5 \cdot 10^{-17}$; titanium glycolic acid complex in basic medium, $3.7 \cdot 10^{-23}$; zirconium lactic acid complex, $3.0 \cdot 10^{-18}$.

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GRIGAS, B. P., and MIKALKEVICHYUS, M. P.

"Growing Single Crystals From the Vapor Phase by a Dynamic Procedure"

Moscow, Neorganicheskiye Materialy, Vol 6, No 1, 1970, pp 141-142

Abstract: In view of the deficiencies in existing methods of growing single crystals of the $A_2V_3^{VI}$ type from the vapor phase, the authors investigated a dynamic procedure for growing such crystals by means of which it is possible to obtain large, uniform single crystals. The basis for this method is the creation of identical physical conditions on the crystallization front during growth of the single crystal along its entire length by maintaining constant temperature, temperature gradient, vapor phase composition (continuous renewal of the evaporating material), and saturated vapor pressure in the ampoule on the crystallization front. Evidence is presented which demonstrates that by using the proposed procedure it is possible not only to obtain high-quality, large single crystals, but also to control their physical properties by varying the pressure of the saturated vapor of the volatile component. Single crystals of $SbSI$, $SbSeI$, and Sb_2S_3 were grown with several different temperatures of preliminary heating of the initial material and temperatures of the evaporator moving with respect to

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GRIGAS, B. P., et al, Neorganicheskiye Materialy, Vol 6, No 1, 1970, pp 141-142

the ampoule at a rate equal to the growth rate of the crystal from the vapor phase. It is pointed out that it is necessary to create conditions such that no admixtures are transferred along the evaporator. A graph is presented showing the specific resistance of Sb_2Se_3 single crystals as a function of the pressure of the saturated selenium vapor when growing Sb_2Se_3 single crystals.

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GRIGELIONIS, B.

"Differentiability of Probabilistic Measures and their Densities"

Upravlyaemye Sluchayn. Protsessy i Sistemy [Controllable Random Processes and Systems -- Collection of Works], Kiev, 1973, pp 263-274 (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V29, by I. Gikhman).

Translation: An approach is presented to determination of the conditions of absolute continuity and production of expressions for the corresponding densities of measures upon transformation of random processes, based on an idea of Grsanov. Results are presented, produced by the author in (RZhMat, 1972, 3V39). They are preliminarily formulated for the case of Markov processes without second order discontinuities.

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. UNDER THE ACTION OF AN ELEC. FIELD, STOICHIOMETRIC NEEDLE LIKE SINGLE CRYSTALS OF $Sb_{1-x}Bi_x$ SWITCH FROM THE HIGH OHMIC (H) STATE INTO THE LOW OHMIC (L) STATE. THE RESISTANCE OF THE L STATE IS 10^3 MINUS 10^4 FOLD LOWER THAN THE RESISTANCE OF THE H STATE. IN THE L STATE, METALLIC COND. IS PRESENT, WITH A TEMP. COEFF. OF RESISTANCE, β EQUALS (3-7) TIMES 10^4 NEGATIVE-DEGREE AND IN THE H STATE, SEMICOND. IS PRESENT. THE ELEC. FIELD OF SWITCHING FROM THE H TO THE L STATE DEPENDS ON THE ELEC. COND. AND TEMP. OF THE CRYSTALS. THE EFFECT OF SWITCHING IS CLOSELY RELATED TO HEATING OF THE CRYSTAL AT THE MOMENT OF ACTION OF THE ELEC. FIELD. CRYSTALS SWITCHED FROM THE STABLE L TO THE H STATE RETURN UNDER THE ACTION OF A STRONG HIGH FREQUENCY OR MICROWAVE FIELD OR HEATING. THE KINETICS

ERE INVESTIGATED OF SWITCHING FROM THE L TO THE H STATE BY A STRONG MICROWAVE FIELD.